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RETARDING THE EVAPORATION OF LIQUIDS

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[A digest]

In this study of the rate of evaporation of solvents from solutions of paraffin, the authors of the Ivanovo Power Institute imeni V. I. Lenin, show that the rate of evaporation of any solvent can be markedly decreased by dissolving paraffin in it.

Only an insignificantly small rate of evaporation of solvents occurred in the case of saturated solutions of paraffin. The critical quantity of paraffin was found to correspond to the quantity dissolved at the saturation point by the solvent in question. Addition of a solvent which reduces the solubility of paraffin, such as the addition of ethanol to toluene or ligroin, lowers the critical concentration. In view of the fact that the effect is very pronounced, and also that it greatly exceeds the reduction of the rate of evaporation which may be due to molecular depression, the results described here are of great theoretical and practical interest.

An increase in the temperature brings about a return to the normal rate of evaporation because a greater quantity of paraffin is then needed to saturate the solution at higher temperatures.

The solvents were evaporated in a current of air. Direct measurements showed that the vapor pressure of the paraffin solutions did not greatly exceed that of the pure solvents.

This article was submitted 14 May 1948.

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